Volunteer Firemen

MARCH

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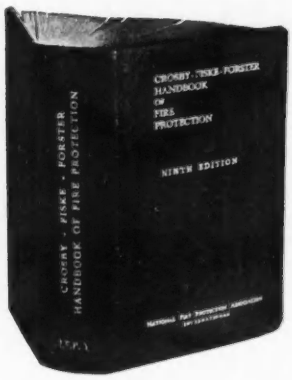

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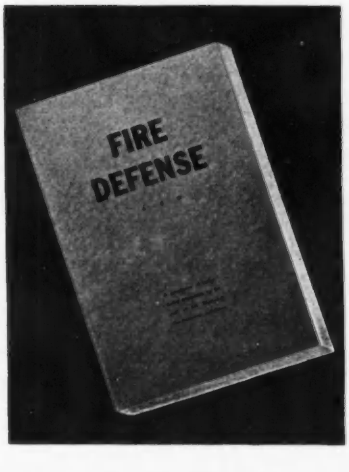

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Volume 10 Number 3

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A THING of beauty is not always a joy forever, regardless of what poets may say—at least not when the beauty is merely an icy splendor incidental to a blaze which drove 100 persons from their homes into the cold winds and snow of a Canadian winter. The cover picture (Montreal Gazette photo) shows the results of a fire which gutted an apartment structure at Outremont, Quebec, during January. With signs of Spring becoming evident, it may be permissible to philosophize over the beauty of the ice coated ruins portrayed on the cover of VOLUNTEER FIREMEN. However, more sober thought would make this scene a reminder of the intense suffering caused by many such fires throughout the United States and Canada. Winter fires undoubtedly cause firemen the greater hardship, but fire at any time of year brings tragedy.

N. F.P.A. member R. D. MacDaniel, Vice President of the Grain Dealers National Mutual Fire Insurance Company, reports a fire in a small Illinois town, at which only one member of the fire department could be rounded up within 15 minutes after the alarm was given. The editors of VOLUNTEER FIREMEN have received other reports of how the shortage of manpower has been handicapping fire fighting operations in other communities and believe that our readers will be interested in a digest of this incident reported by Mr. MacDaniel.

The fire occurred in the Glasford Grain and Milling Company plant at Glasford, Illinois, during January.

The plant had been shelling corn in the morning. The corn was full of shucks and was causing trouble at the cleaner. They had to shut down once or twice to remove accumulated shucks at the cleaner with the result that the floor around the cleaner and cob spout was pretty generally covered with cobs and shucks. The elevator was shut down about noon for the outside man to go to lunch. Harry Bruninga, the manager, did not leave until about 12:55 P. M. There was no evidence of fire at that time. He returned from lunch at 1:30 P. M. and discovered the fire.

When the fire was discovered and the alarm was turned in, there was a delay variously estimated at from 15 to 20 minutes in the response of the fire truck to the call. The delay was due to the fact that the fire chief was working in Peoria; 8 members of the department are in the armed services and 10 other members work in Peoria. One member of the department was in town and responded after considerable delay.

In the meantime the fire was held in check with first aid equipment. When the truck arrived a 2½-inch line was laid from a hydrant 250 feet away. Hydrant pressure was insufficient to raise a stream to the cupola. The manager then climbed part way up the cob spout and managed to get water in the cupola. However, this was not effective and the plant employees took the hose into the cupola to control the fire.

The Pekin fire department was called and responded in about 20 minutes. By the time they arrived the fire was out except for a small blaze on the elevator head and the manhole cover on the cupola roof. The Pekin department was equipped with a pumper and they hooked into the 2½-inch hydrant line and ran two 1½-inch lines. There was considerable difficulty in getting the pumper to operate properly with this hook-up.

All evidence points to the fact that this fire had its origin in fire from the cob burner backing up the cob spout and igniting shucks on the cupola floor. When the fire was discovered, the wooden spout into which the cobs and shucks fall over from the cleaner before emptying into the metal cob spout, was afire. The most severe damage and the hottest fire was on the side of the cupola where the cob spout leaves the cupola.

The Glasford Fire Department was subjected to rather severe criticism for their delay in answering this call. As a result a meeting was held and the department enrolled additional members to take the places of those in the armed forces and those working out of town. Mr. Bruninga of the Glasford Grain and Milling Company is to direct the operations of the department when the regular chief is working in Peoria. Due principally to the efforts of Mr. Bruninga and his employees an almost certain total loss from this fire is said to have been averted. In spite of the fact that the entire cupola was ablaze, their judicious use of water limited the damage to less than 100 bushels of grain and there will be good salvage on this.

LAST month sixteen departments with 182 men joined the Volunteer Firemen's Section for the first time. One hundred and three departments with 2,309 men renewed membership. This makes a total enrollment of 767 departments and 15,107 men. The following departments are newly enrolled:

Wilson Dam Public Safety Service, Wilson Dam, Alabama.
Cambria Fire Department, Cambria, California.
Dillsboro Volunteer Fire Department, Dillsboro, Indiana.
Hanover Fire Department, Hanover, New Hampshire.
West Paterson Fire Department, West Paterson, New Jersey.
Brushton Fire Department, Brushton, New York.
Camp Shanks Fire Department, Orangeburg, New York.
Port Crane Fire Company, Incorporated, Port Crane, New York.
Westerville Fire Department, Westerville, Ohio.
Coopersburg Fire Company No. 1, Coopersburg, Pennsylvania.
Reliance Fire Company No. 1, York, Pennsylvania.
Tennessee Valley Authority, Knoxville, Tennessee.
Lone Star Fire Department, 8 to 4 Shift, Texarkana, Texas.
Canadian Industries, Ltd., Nylon Division, Kingston, Ont., Canada.
Petawawa Military Camp Fire Brigade, Petawawa, Ont., Canada.
Port Colborne Fire Company, Port Colborne, Ont., Canada.

1½-Inch Hose Lines Play a Big Part In Modern Fire Fighting

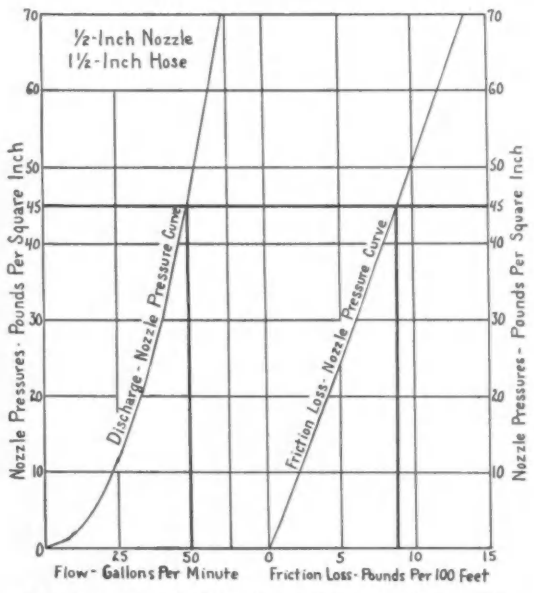
EACH year more and more fire fighters come to appreciate the advantages derived through the use of 1½-inch hose. This size hose, as is well known, provides effective streams that may be easily handled. There was a time, however, when fire fighters frowned on the use of small stream equipment. The theory was that if a blaze could not be controlled with a chemical line, the only remedy was to "sock it with a big line." There was no happy medium.

Such a point of view obviously was not realistic. It amounted to an assertion that if the chemical or booster line was not adequate, it was necessary to apply water at a rate of from 15 to 20 times that of the small stream equipment. For example, at 50 pounds nozzle pressure a ¼-inch nozzle on the chemical line would be discharging only 13 gallons per minute but a 2½-inch line at the same pressure would discharge 209 gallons through a 1-inch tip or 265 gallons through a 1⅛-inch tip.

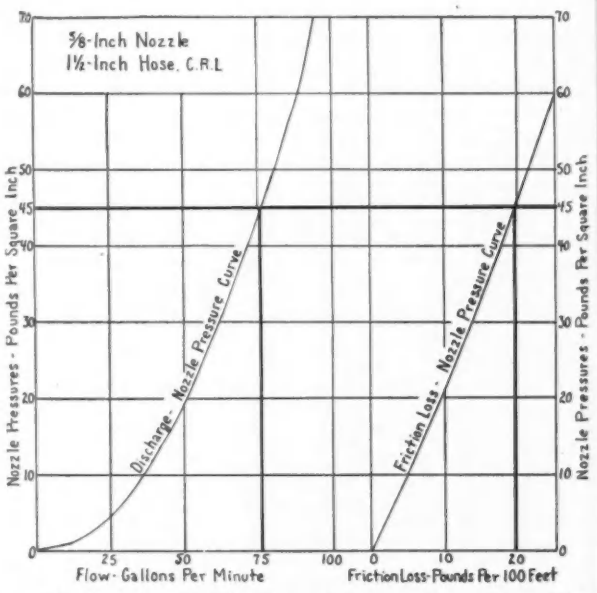
Admittedly, small streams can and do control from 75 to 90 per cent of all fires handled by fire department hose streams. Obviously, there is a place in the picture for streams intermediate between the so-called "first-aid lines" and the "big line." This place is filled by the use of 1½-inch hose. With a ½-inch nozzle this throws water at the rate of 52 gallons per minute at 50 pounds per square inch, just four times the water thrown by a booster or chemical hose. With a ⅝-inch nozzle the 1½-inch hose gives a more powerful stream.

To put it another way, the 1½-inch line is equal to about four booster lines and the 2½-inch line is equal to about four 1½-inch lines. However, the 1½-inch hose has another trick up its sleeve. It is usually employed in leader line assemblies with two or more of the 1½-inch lines supplied by a single line of 2½-inch hose. Thus up to the full capacity of the 2½-inch hose may be utilized if needed, but with a better distribution of water and through lines much more mobile and easy to handle than a single 2½-inch hose stream.

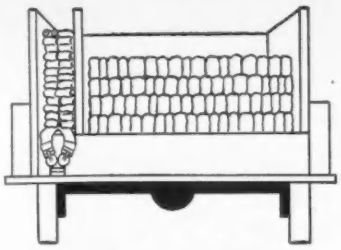
THE entry of 1½-inch hose on the American fire department scene is an interesting story. Like gunpowder and the mariner's compass it was reportedly imported from China. The Shanghai Fire Brigade, for many years composed of native firemen directed by European and American officers, was long noted as one of the more progressive fire fighting outfits of the world. The Chinese, long accustomed to consider flames to be a manifestation of a fire demon, are said to be among the most fearless and fanatic of fire fighters. They have been known to drag a line of hose almost into the heart of a blaze regardless of the intensity of the heat and smoke. Their officers, however, observed that due to the smaller stature of the natives, the usual 2½-inch hose was difficult for their men to handle. Accordingly, 1½-inch hose was substituted. The excellent results obtained in controlling serious fires in such structures as the large cotton warehouses on the Shanghai waterfront, attracted the attention of American observers to the value of hose that was more mobile than our standard 2½-inch and 3-inch lines. The late Chief Pett of the Shanghai Fire Brigade (long a member of the N.F.P.A.) used to take delight in describing the amazement of visiting fire officials when they saw what his Chinese firemen could accomplish by their bold use of 1½-inch lines. Former Chief R. J. Scott of Los Angeles was one of the first chiefs in the United States to make extensive use of a 1½-inch hose. Another leader in this development was the late Chief Howard L. Stanton of Norwich, Conn., an honorary life member of the N.F.P.A. At the present time 1½-inch hose is standard equipment on almost every pumper.


½-Inch Nozzle
1½-Inch Hose
Nozzle Pressures - Pounds Per Square Inch
Discharge - Nozzle Pressure Curve
Friction Loss - Nozzle Pressure Curve
Flow - Gallons Per Minute
Friction Loss - Pounds Per 100 Feet

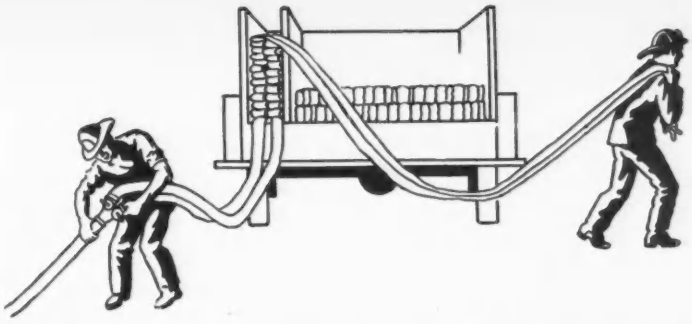
Fire flow characteristics for a ½-inch nozzle on a line of 1½-inch hose may be calculated from this chart. For example, the heavily inked lines show that at 45 pounds nozzle pressure this line will discharge almost 50 gallons per minute.


⅝-Inch Nozzle
1½-Inch Hose, C.R.L.
Nozzle Pressures - Pounds Per Square Inch
Discharge - Nozzle Pressure Curve
Friction Loss - Nozzle Pressure Curve
Flow - Gallons Per Minute
Friction Loss - Pounds Per 100 Feet

Fire flow characteristics for a ⅝-inch nozzle on a line of 1½-inch hose. As shown by the chart this size of nozzle gives a fairly heavy stream as compared with the ½-inch tip, but the friction loss is approximately twice as great at the same nozzle pressure.

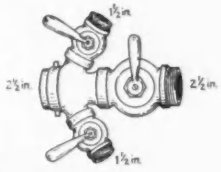


Combination Load of
1½-inch and 2½-inch Hose



THERE are a variety of methods of carrying 1½-inch hose on the apparatus and it is probable that almost every fire department has its own pet scheme. Shown on this page are a number of methods that have obtained widespread acceptance for reasons of convenience in handling. Shown above is a typical load arrangement used where a separate compartment for the 1½-inch hose has been provided at the side of the regular hose body. One advantage of having a separate compartment is that either the 1½-inch hose or the 2½-inch hose can be used without disturbing the balance of the hose on the apparatus. This is important in busy fire companies which may have to use either size of hose with relative frequency.

Generally where a separate compartment for 1½-inch hose is provided, the hose is made up with two lines connected to a wye and with nozzles attached. After the 2½-inch hose has been laid the 1½-inch lines are connected to the larger hose which serves as the supply line by means of a 2½-inch wye connection as shown. On the other hand, where a hydrant is conveniently located it is possible to connect the 1½-inch lines direct to a 2½-inch hydrant outlet.

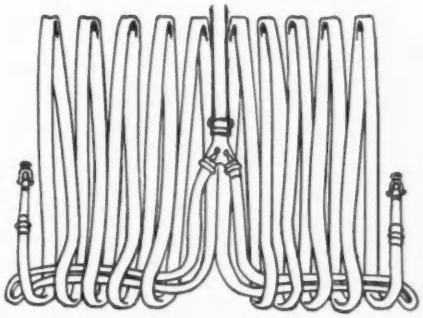


In some cases a water thief is preferred to an ordinary wye connection. The use of the water thief makes it possible to supply both 1½-inch and 2½-inch hose streams from the same pumper or hydrant line. In some instances the 1½-inch lines are used in fighting the fire while the 2½-inch connection is merely ready to back up the small streams should the fire spread or the initial attack is made with the 2½-inch line and mopping up is done with the smaller hose.

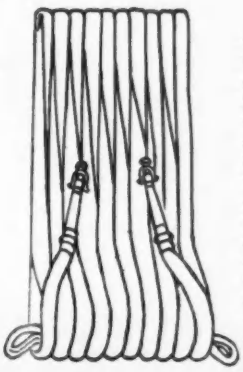
Another arrangement for using 1½-inch hose consists of making connection to the nozzle of a 2½-inch hose line. Standard nozzles of modern design have 1½-inch standard hose threads for connecting the tips. By removing the tip the 1½-inch hose can be attached and utilized for easy handling and reduction of water damage. In some instances a 1½-inch wye connection is used permitting two or more small lines to be extended from the nozzle of the large hose.

Where there is no separate compartment for the 1½-inch hose a skid hose load is usually employed. Several popular skid loads are illustrated below. In some cases a separate wooden deck is provided over the regular load of 2½-inch hose so that the advantage of having a separate compartment for each size of hose is obtained.

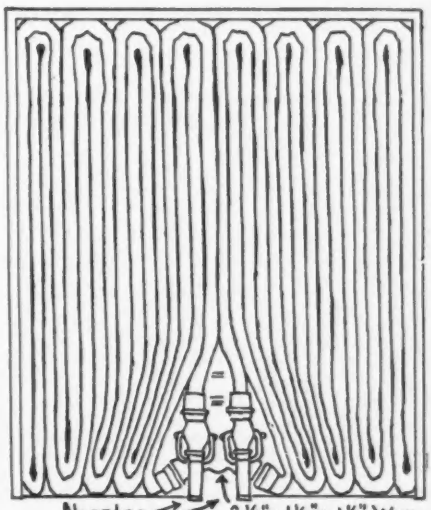
Where apparatus has large booster tanks 1½-inch hose is sometimes employed for booster lines in order to obtain a good stream quickly before the hydrant connection is made.



Left: The so-called San Antonio skid load suggested by District Chief A. L. Rathke, San Antonio, Texas, Fire Department, is arranged to provide handholds at either side of the load. This makes it easy for one man to spill the two lines of 1½-inch hose. These lines are attached to the 2½-inch hose load on the apparatus by means of a gated wye connection.



(Right). One of the most popular skid hose loads for 1½-inch hose is the Cisco load originally developed by the volunteer fire department of Cisco, Texas, and subsequently recommended for general use by the Fire Department Instructors' Conference. To make this load the nozzles are placed above the gated wye at the end of a "horseshoe load" of 2½-inch hose; nozzles pointing to rear of truck and secured to wye. Fold hose from both the right hand nozzle and the right hand 1½-inch connection of the wye in a double line back and forth; starting along the center of the hose body continuing folds with lines parallel with sides of hose body. The left hand line is loaded in similar manner. To unload, take hold of the 1½-inch lines where they fold back from the wye, raising the wye high to loosen the hose. The 2½-inch hose should unload in a straight line with a 2½-inch line doubled at each side. The line may be charged immediately.

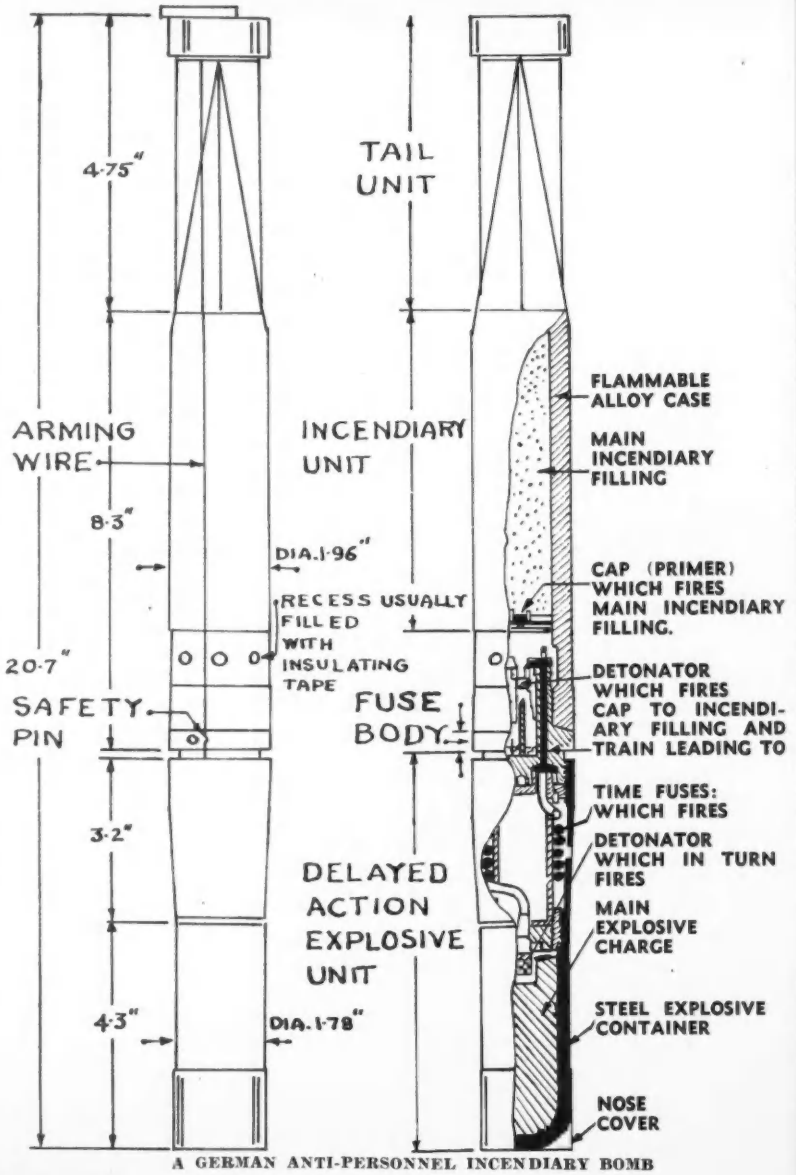

Nozzles
2½" x 1½" x 1½" Wye
Top View - Cisco Load
Nozzle Shutoffs hooked over wye shutoffs
2½" x 1½" x 1½" Wye
Load of 1½-inch hose
Top layer of 2½-inch hose load
Rear View - Cisco Load

EXPLOSIVE FIRE BOMBS

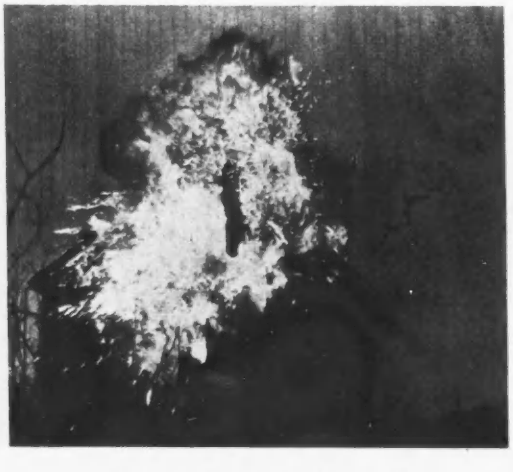
RECENT use by the Germans of incendiary bombs containing a delayed action explosive charge is no doubt inspired by a desire to injure or hinder fire fighting personnel. These fire bombs are much the same as the old magnesium type incendiary bomb but "something new has been added." That something new is an additional nose section of steel construction containing a high explosive charge sufficiently powerful to endanger persons within 50 yards who are not behind some such cover as a brick wall.

On this page are shown diagrams of these German anti-personnel incendiary bombs prepared from illustrations published in "The Midnight Watch," a bulletin of instruction for Britain's Fire Guard and Civil Defense Workers. This bulletin contends that when such bombs fall in areas where they may start a fire, they may be handled by aggressive action with first aid equipment provided the fire fighters work from behind adequate cover for at least seven minutes or until the explosion has occurred.

The total weight of this bomb is four pounds, 14 1/4 ounces, with an explosive charge of 3 2/5 ounces and incendiary filling weighing 8 1/8 ounces. In addition the case of the incendiary portion of the bomb is of flammable metal alloy. Of course, the main purpose of the explosive charge in the steel nose of the bomb is to keep fire fighters at a safe distance until a fire is well under way. Obviously, if no lives or important property are endangered by a fallen incendiary bomb it is best to let it burn out. Not all bombs dropped are likely to be of the same type. Unless a person is able to quickly determine the exact type of bomb that has fallen the best plan is to treat them all with full respect.



A GERMAN ANTI-PERSONNEL INCENDIARY BOMB



Probably no one on this continent knows with certainty the probability of enemy air attacks at various points on the mainland of North America, but there should be some comfort in realizing that the U. S. Army Air Force and the R.A.F. are aggressively taking the fight to the enemy. The picture at the left shows what happens when an American gasoline-filled incendiary bomb strikes a house. A "big line" not stirrup pumps will be wanted to stop the fire that such bombs start.

U. S. Chemical Warfare Service photo

A 16 mm sound motion picture film of British origin and recommended by OCD shows British practice in handling the new German incendiary bombs. The film is available for rent or purchase from the Princeton Film Center, Princeton, N. J. It stresses an attack on explosive incendiary bombs from behind substantial brick walls. While this practice may be justified in British cities where houses are largely of brick with many brick interior partitions, there may be some question as to the wisdom of approaching closely to an explosive bomb in a wooden building. Due to their weight, these bombs usually penetrate to the lower floors.

Activity is a Secret of Success for Volunteer Fire Departments

By C. W. Alcorn, Chief,

Rosedale (Pa.) Volunteer Fire Department (Member N.F.P.A.)

ACTIVITY is the thing that keeps any volunteer Fire Department intact. When a group of firemen cease to be active it isn't long before interest begins to lag and attendance percentages fall and finally the company disbands. When I say activity I don't necessarily mean social activity although it definitely has a place in a volunteer organization. I refer to activity in the things fire departments are organized for—"protection of life and property and any other emergency service they can offer to a community."

To illustrate this I would like to make an example of my own fire department by briefly giving a resumé of a year's achievement exclusive of social affairs. I will use my own department because it is concerned with a small community.

The Rosedale Fire Department of Allegheny County, Pennsylvania, has approximately 300 dwellings in its chartered district, although fire protection is rendered over a considerable area surrounding the town. The department has a total membership of 30 men. Every man is expected to attend one meeting and one drill each month and even with working conditions as they were in 1942 records show an average attendance of 24 men at all meetings and drills. The drills are carried out regardless of weather, at different locations in the community, giving every fireman an opportunity of knowing the various locations of plugs and cisterns as well as getting acquainted with the fire fighting equipment.

In 1942 we responded to 33 fire alarms and 8 miscellaneous calls such as pumping cisterns; taking down flags; and putting extensions on smoke pipes. This, combined with the 12 regular drills, amounts to more than one activity per week with the fire apparatus. Aside from this we sponsored 20 hours of first aid instruction and 27 hours of civilian defense training.

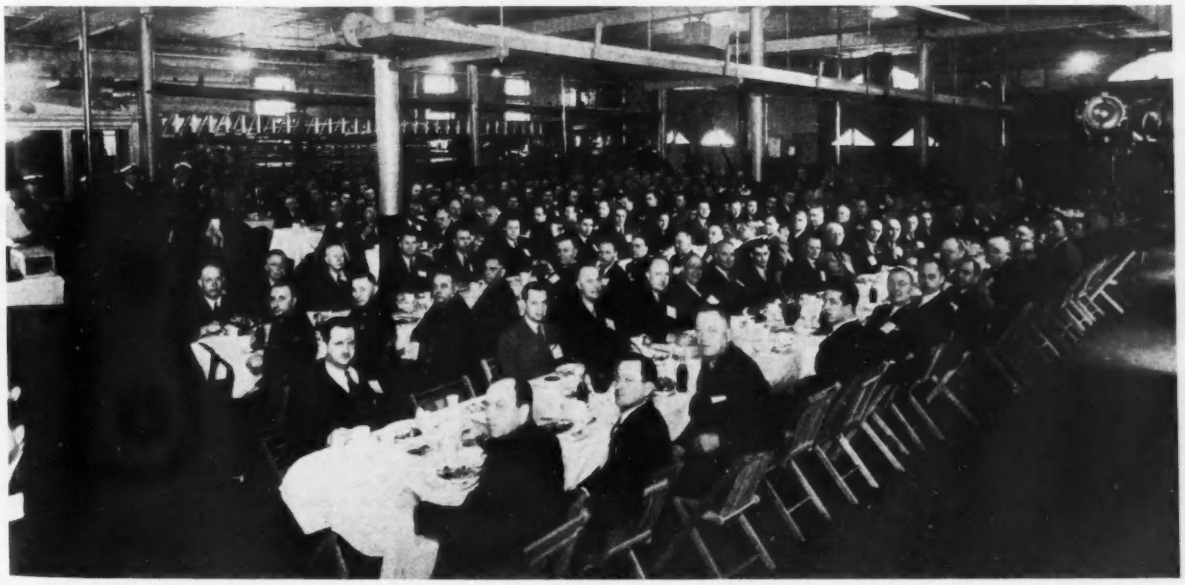
In February of 1942 we decided to purchase a second hand ambulance not knowing whether we would have any calls for its service but to our surprise we had 70 calls for the ambulance by the end of the year; less than eleven months. To make our ambulance service more efficient we introduced voluntary night duty, having two firemen sleep at the engine house every night. At present we have completed eleven months of this service and have never failed to have men on duty. This idea of night duty gives the men a chance to get more intimate with their buddies because the schedule is so arranged that the men sleep with different men each time, so far as possible. In the course of these 70 calls we have taken many types of cases (accident - maternity - mental - and sickness) to 20 different hospitals and institutions. The experiences the men encounter and the responsibility they shoulder tends to blend the organization into a cooperative and harmonized group.

I think these routine and necessary activities that volunteer firemen engage in each week, each month, and each year do more than anything else to make that organization efficient and successful. The more activity your organization can have, the better the organization.

OCD Suggests Model Civilian Defense Ordinance

OCD has recently issued a "Model Ordinance of Civilian Defense Organization" for the guidance of municipalities desiring local legal authority for civilian defense activities. The recommended ordinance gives legal status to the local Defense Council, the U. S. Citizens Defense Corps, and the U. S. Citizens Service Corps.

Protection of life and property under enemy attack is the duty of the Citizens Defense Corps which is recognized as a separate legal agency by the model ordinance. The ordinance provides that heads of existing municipal services shall be in charge of comparable services of the corps and specifies that the fire chief shall head the auxiliary fire service.



One of the most important reasons for the success of organized firemen's training programs in the United States has been the Annual Fire Department Instructors Conference, sponsored by the Fire Prevention Department of the Western Actuarial Bureau and the Memphis Fire Department. The above picture, taken during the 15th annual conference held January 5-8 of this year, shows a luncheon group at the Memphis central fire station. The 1943 meeting had an attendance of 325 firemen's training experts from 28 states and the District of Columbia.

Acme

Blackington

During wartime only the armed forces are likely to have enough men to fight forest and brush fires by brute strength as shown in the upper left hand photo. At the right a single man armed with a back-pack pump tank extinguisher is able to stop a considerable amount of fire even in tough scrub country.

Forest, Grass, and Brush Fires Present a Serious Problem to Many Fire Departments

WARM Spring afternoons in the average suburban town have meant just one thing to the volunteer fireman—grass and brush fires. As neighbors rake and burn their yards, firemen must remain near the station ready to roll at the almost inevitable blast of the siren. Many fire departments do more running during the Spring than throughout the entire balance of the year.

Today the average fire department is facing the brush fire season with some apprehension. Many fire department members are in the armed forces. Many of the remaining members are working in war industries, often out of town. If the usual hundreds of grass, brush and woodland fires occur this Spring, the loss of man-hours to the war effort will be terrific, disregarding the large losses of property that frequently result from such fires. Firemen will not want to leave their jobs to fight brush fires, and yet without adequate numbers of fire fighters such fires may sweep into built up areas causing conflagrations.

There are three leading causes of accidental grass and brush fires. These are roadside fires due to careless disposal of smoking materials, faulty outdoor rubbish incinerators, and careless brush burning.

This year the decreased automobile traffic should reduce the number of roadside fires. Fire departments should urge householders to use properly constructed incinerators. If metal incinerators are not available in sufficient quantity, incinerators or fireplaces of brick or stone construction should be used. Perhaps this is the time to get the town to arrange for a suitable municipal incinerator. Some communities prohibit incinerators made of widely spaced wire mesh that permits burning materials to escape.

Most cities and towns where there is a brush fire problem, have either a state law or local ordinance requiring that the fire department issue a permit restricting burning to a specified time. Examples of such ordinances appear in the N.F.P.A. pamphlet "County and Municipal Forest Fire Ordinances" available at 10 cents a copy. The purpose of such restrictions is to prohibit burning during unusually dry and windy weather.

THE fire department should inform citizens regarding any regulations that are in effect and secure the cooperation of the police in obtaining enforcement. The department should also give instruction as to the proper times for, and methods of, burning. The mere issuance of a permit does not assure safe burning. Care must be taken to see that adequate first aid fire equipment such as pump tank extinguishers, sprayers, and garden hose are at hand just in case the wind starts playing tricks with the fire. Persons burning brush should be instructed not to burn brush in huge piles but to carefully feed a small fire from separate piles of combustible materials to be disposed of. Bonfires should be started to leeward so that they will not burn too rapidly.

In burning an area of grass a good practice is to wet the grass around the area to be burned and have a charged garden hose or a pump tank extinguisher at hand before starting to burn. It may be too late to run for such equipment after the fire starts to spread.

YOUR ENTIRE DEPARTMENT CAN SHARE N.F.P.A. MEMBERSHIP

- Through the Volunteer Firemen's Section, fire companies may obtain the advantages of N.F.P.A. membership. Each member fire company is entitled to have VOLUNTEER FIREMEN magazine sent to the homes of ten firemen.
- As a member, the fire company receives at headquarters a set of all other regular N.F.P.A. publications. This includes the QUARTERLY MAGAZINE and monthly NEWS LETTER.
- Membership in the National Fire Protection Association costs ten dollars per year. If more than ten firemen want to receive the magazine, an additional one dollar should be sent for each fireman in excess of the first ten enrolled. Because of the large amount of material mailed to members, not less than $10 can be accepted from any company.

INDIAN FIRE PUMPS

FIRE IS THE FRIEND OF THE ENEMY! *Be prepared for all manner of fires set by enemy agents. Use handy, rapid action* INDIAN FIRE PUMPS.

VETERANS OF A THOUSAND BATTLES WITH THE RED MONSTER!

ADJUSTABLE NOZZLE
light turn throws either powerful, 50 ft. stream or coarse spray. Just the thing for all types of general fire fighting.

NO piece of fire fighting apparatus has greater mobility, speed and hard hitting power than clear water INDIAN FIRE PUMPS. Off the truck — no hose to lay — on the job — stream or spray — smash the fire — job's over — back to the station. If you have never used INDIANS you'll wonder how you ever managed without them. Over 70% of your calls can be handled with INDIAN FIRE PUMPS alone. Rust-proof 5 gal. tank carries by handle or slung on back, thus permitting operator to move about quickly without having to stop and pick up the extinguisher.

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Only clear water used—NO CHEMICALS
May be filled quickly at any water supply

D. B. SMITH & CO. 412 Main St., UTICA, N. Y.

PACIFIC COAST BRANCH — Hercules Equipment & Rubber Co., 435 Brannan St., San Francisco, Cal.

Fire Department Gas Masks

There Are Three General Types of Gas Mask Equipment Used by Fire Departments—Each Has Certain Advantages and Disadvantages

MASK equipment used by fire departments for protection against heavy smoke or noxious gases may be divided into three general classes. These are the canister type of mask with which the wearer breathes air drawn through a canister containing various filtering ingredients; the self-contained oxygen type mask or helmet which provides an oxygen supply independent of the outside air; and the air-line mask employing an air hose to bring fresh air from an outside source not polluted by smoke or gases.

Canister type gas mask.

THE canister type of gas mask is the most frequently encountered in the fire service. These masks employ a tight fitting face piece connected to a canister containing chemicals to take out unwanted gases from otherwise breathable air. Canister type masks have proved very useful in the fire department when used with due regard to their limitations. These masks do not provide the oxygen which is necessary for the support of life. They merely make breathable, air which has been filled with smoke or gases, providing the necessary life sustaining oxygen is present in sufficient amount. Also canister type masks have another limitation. Two or three per cent density of chemicals in air is about the highest concentration that the chemicals in the canister will absorb for any length of time. Therefore, canister masks cannot be depended on for use in heavy concentrations of gas or where the supply of oxygen is insufficient.

There have been several cases where fatalities have resulted when canister type masks have been used in attempting rescues from manholes, wells, silos, or other locations where there was too little oxygen to support life. In such instances either the self contained oxygen mask or the air line mask should have been used. On the other hand the canister type mask is undoubtedly the easiest to use under fire conditions and is standard equipment on many pumper, ladder and rescue trucks.

Many men familiar with the use of canister masks of military type may recall that they received adequate protection against gases known to be extremely poisonous. However, the poisonous gases used in war literally have "all outdoors" in which to dissipate. Their concentration of gas is seldom as heavy as the gases of combustion frequently found in burning buildings. For example, a comparatively safe gas like ammonia can prove quite harmful when imprisoned in a room with little ventilation. Furthermore, a soldier in the field, under ordinary conditions does not encounter a deficiency of oxygen equal to that encountered at many fires. Canisters designed for protection against war gases are not intended to give protection against the smoke and gases encountered while fighting fires. Also for certain industrial uses, special gas mask canisters are available for protection against specific gases such as ammonia and chlorine. Each of these special canisters is usually identified by a specific color. These special canisters are not intended for use in fire fighting operations although the same gas mask face pieces may be utilized where the proper canister of the same make is available.

One-hour type self-contained oxygen breathing apparatus.

FOR use in locations where there is insufficient oxygen present or where concentrations of dangerous gases are likely to prove too great to be adequately removed by canister type filters, self-contained oxygen breathing apparatus is frequently employed. These are available in one-half hour, one-hour, and two-hour types, depending upon the length of time each may be used safely without recharging. The face piece may resemble those used on canister type masks. However, instead of drawing the atmosphere into the mask through a canister, the mask is designed to feed an independent supply of oxygen to the wearer. This oxygen is provided in a high pressure tank of small size connected to the mask. The pressure is reduced to atmospheric by a reducing valve and is supplied to a rubber bag or lung from which it is inspired by the wearer. The carbon dioxide content of the air exhaled from the lungs of the wearer is removed by soda-lime and becomes suitable for re-breathing after the addition of the oxygen from the tank. The self-contained apparatus may be used in locations containing high concentrations of gas or lacking needed oxygen. In some instances gas protective clothing is worn in conjunction with the self-contained breathing apparatus to protect against gas burns on other parts of the body.

To wear this type of mask successfully and safely, a man should be in good physical condition and must have been thoroughly instructed in the mechanism of the apparatus. In fire departments this equipment is usually provided only with trained rescue squad groups.

THE air line or fresh air mask is a comparatively simple device that can be used in almost any concentration of gas or smoke which the unprotected parts of the wearer's body can stand. It consists of a face piece mounted on a safety belt and connected by a non-collapsible air hose to a source of fresh air. An air blower is connected to the hose at the source of fresh air.

The hose is used in various lengths as required varying from 25 to 200 feet or more. The blower drives the fresh air through the air hose and up into the face piece, so that the wearer receives fresh air independent of the atmosphere in which he is working. However, he is dependent upon the condition of the air at the point where the blower is located.

An air line mask is considered somewhat less cumbersome than certain self-contained breathing apparatus and can be used by almost any active person with much less training. The wearer is not likely to become lost in a dark cellar or smoky fire, as he can follow his air hose back to the point of entrance. If desired, a life line can be attached to the safety belt. An increasing number of fire departments have been using the air line type of mask. The blowers supplying the fresh air may be either hand or power operated.

Of course, the air line mask has certain limitations in that dependence upon the air hose may be a hindrance under certain fire conditions. Also some fires are so smoky that the entire vicinity within several hundred feet is heavily charged with smoke which may make it difficult to locate the blower in proximity of fresh air.

Air line type gas mask.

GAS masks should be kept in their proper containers when not in use. Nothing should be put in the container that will put weight upon or otherwise injure the face piece. Masks should be put away clean and kept in a cool dry place. The canisters must be kept dry and care should be taken to keep track of the amount of use either a canister or the oxygen container has received so that a man will not be sent into a building with a depleted supply. If a canister has become wet it should be replaced. Gas masks should be handled with care as they may save life.

Providence, R.I., also is protected by the

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AIR RAID WARNING SYSTEM

FEDERAL Sirens are ruggedly built for dependable service

Every resident has maximum protection against air raids!

● Only hard facts counted when Providence went into the subject of an air raid signal system. Theoretical reasoning and untried ideas were quickly discarded in favor of the FEDERAL System—the System that is backed by 40 years of siren engineering and construction—the System that was tested and proved in Europe under actual bombing conditions—the System that eliminates "dead spots" by the use of a multiplicity of small electric sirens, closely spaced—the System that gives *maximum protection at minimum cost.*

Providence, with an area of 18 square miles and a population of 250,000, installed 14-5 hp. and 50-2 hp. FEDERAL Sirens. These so effectively cover the city that every resident is certain to be within the effective range of at least one siren.

WRITE FOR BULLETIN, TODAY!

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"Siren Headquarters"

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THE EMERSON RESUSCITATOR

Provides three-fold protection against asphyxial deaths from smoke suffocation, drowning, electric shock and other causes. May be operated as a fully automatic self-adjusting breathing machine, or as an inhalator, or for the aspiration of froth, mucous or other secretions from the victim's throat. In use by hundreds of fire departments and leading hospitals throughout the United States.

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The economical, efficient first-aid protection against sudden, extra-hazardous fires.

Wherever dangerous fires break out in flammable liquids, gases under pressure or vital electrical installations, duGas is always ready, certain and fast. DuGas hand and wheeled extinguishers are available in a variety of sizes.

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Marinette Wisconsin

"MASTER ★ LIGHTS"

THE G23

25,000 c. p.

76 oz.

FOR FIREMEN POLICE AND WATCHMEN

HAS ALL NIGHT (15 HOUR) SERVICE AND HIGH POWER (5 HOUR) FILAMENTS

SPARE BATTERY INSERTED IN TEN SECONDS

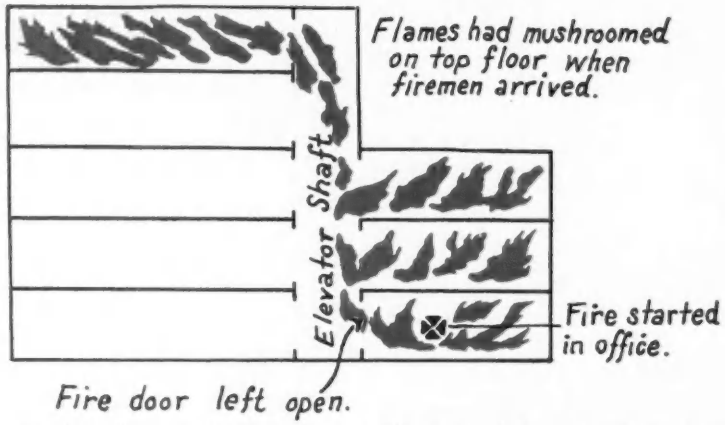
MOST POWERFUL—FINEST

"MASTER★LIGHT★MAKERS"

CARPENTER MFG. CO.

168 Sidney St., Cambridge, Mass.

Warehouse Blaze Furnishes a Good Example of Typical Fire Behavior



The above diagram shows how a fire in a Wilmington, Delaware, warehouse passed through an open fire door, extended up an open elevator shaft and mushroomed on the top floor before firemen arrived.

A REPORT by Chief George T. Morgan of the Wilmington, Delaware, Fire Department, covering a recent fire in the McMahon Brothers furniture warehouse in that city, is a very interesting example of how little fires become big ones. Chief Morgan's report shows the importance of having employees know what to do when a fire occurs, of promptly giving an alarm, of keeping fire doors closed, and the part an open stair or elevator shaft can play in spreading a fire. In this case the fire department stopped the blaze where it was when the apparatus arrived, but a series of errors made before the alarm was given were responsible for a loss of approximately $50,000 in a blaze which required the efforts of a large part of the Wilmington department and the use of numerous heavy streams.

The warehouse was a part three and part five story brick-joisted structure with open stair shafts. Investigation by the fire department discloses that about 8 P. M. on the night of the fire a truck driver employed by the concern was returning his truck to the warehouse when a woman yelled "fire" and pointed toward the warehouse.

The driver stated that he parked his truck at the warehouse and could see fire inside the office in the building. He unlocked the door to the building and went inside. In order to get into the office he opened a fire door between the office and the room where he entered. The office was filled with heavy smoke to within about three feet of the floor. The fire was burning about two feet along a wooden partition where the pipe for a small stove went through the partition. The driver then attempted to carry the stove outside but could not because the top was hot. He then ran out for a pile of blankets used in covering furniture. With the help of another man he covered the stove and carried it out of the building.

Then the two men returned to the office and started to use a fire extinguisher but were unable to control the fire. About this time another neighbor came in to help and the truck driver told him: "Send in the alarm because I can't handle this fire."

The alarm was given at 8:05 P. M. When the fire department arrived the fire had passed through the open fire door from the office and had extended up the open stair and elevator shaft to the top floor. There the heat accumulated causing the fire to mushroom over the top floor. The fire had also involved the upper floors of the three story section over the office.

Due to the delay in giving the alarm and the fact that the fire door was left open this fire required the efforts of nine pumper companies and a total of 21 pieces of apparatus. Fifteen hose streams were used to supply three turret wagons and two aerial lines operated from the street, in addition to hand lines.

Uniform Identification Markings Ordered for Emergency Vehicles

A UNIFORM system of identification for emergency vehicles permitted to operate during periods of real or practice air-raid alarms was announced last month by Director James M. Landis of OCD. The uniform markings, mandatory in the Eastern Defense Command, are recommended for use in all states.

The primary means of identification for emergency vehicles is now a triangular white pennant on which appear the initials CD in red. This must be attached to a vehicle operated during an air-raid or "red" alarm. At night the pennant is supplemented by a headlight mask showing the CD in green.

These prescribed identification devices must be used on all private cars employed by the Citizens' Defense Corps and various Civilian Defense Auxiliaries. Vehicles operated by military forces, fire apparatus, police cars, ambulances, and utility trucks which by their character and markings are plainly of emergency nature are excepted.

Operation of vehicles, other than the specifically excepted, without the prescribed markings will subject the operator to the penalties provided for the violation of military air-raid regulations.

New Training Film On Fire Hose

ONE of the best motion pictures yet developed on a fire department training subject is a new 16 mm. sound reel produced by Photo and Sound, Inc., 153 Kearny Street, San Francisco, and entitled "The Fire Hose." The film describes what fire hose is, how it should be cared for, and demonstrates standard hose loads and fire fighting evolutions employing hose.

The film should prove a valuable aid to the training program of almost any fire department, large or small. If shown to men before actual outdoor drill sessions, it would provide an example of good practice and teamwork for the hosemen to emulate. The various evolutions shown in the picture were acted by the San Mateo, California, Fire Department (member N.F.P.A.).

The film may be rented from the Princeton Film Center, Princeton, N. J., at a daily rental of $4, or the film may be purchased for $49.50.

STATE TRAINING NOTES

Mississippi. Following a series of three-day teacher training courses for fire department instructors held last December, zone schools for the training of fire department instructors were organized throughout the state.

Texas. Captain John R. Dickhout of Dallas is heading a new training program for fire fighters which is attempting to give every Texas fireman the benefits of a coordinated training program so that they will be prepared to work together during the war.

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Specialists in Public Safety

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FIRE ALARM
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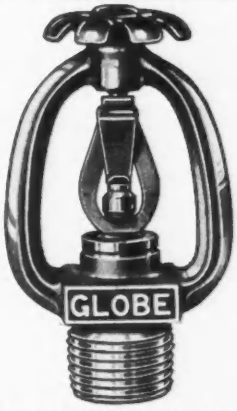
Two thousand municipalities, several thousand industrial plants and many of the largest institutions now use Gamewell Systems for the protection of life and property and to ensure the permanency of established business.

We freely cooperate in planning protective Signaling Systems.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS, MASSACHUSETTS



THE AUTOMATIC FIREMEN

Automatic Sprinklers

DISCOVER the fire — its heat sets them in operation;

RESPOND by discharging water directly on the flames;

CALL HELP by immediately sounding an automatic alarm

THEY ARE YOUR
First Line of Offense

A Good Rule for Fighting Fire in a Sprinklered Building

Sprinkler control valves should not be closed until the fire is out or under control by other means. Haste to close sprinkler valves before proper investigation has been made or with the hope of preventing damage by water, has resulted in many serious fires which would otherwise have been controlled by the sprinkler systems. The amount of water discharged by sprinklers is small compared to that from hose streams which may be needed if the fire rekindles.

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2035 WASHINGTON AVENUE, PHILADELPHIA, PA.
SALES AND ENGINEERING OFFICES IN PRINCIPAL CITIES

COMPLETELY REVISED TEXT
ON
MUNICIPAL
FIRE
ADMINISTRATION

This 600 page text on Municipal Fire Administration contains matter never before in print.

Designed primarily for use in the practical correspondence course in Municipal Fire Administration, sponsored by the International City Managers' Association, this new text is of value to everyone interested in the direction or operation of a fire department.

The problems of volunteer and part-paid fire departments, including those of equipment, rural water supplies, mutual aid and county organization, fire fighting tactics and strategy, are given attention.

The text is furnished as part of the $35 fee covering the complete cost to a student of the course. This fee includes the review and correction of lesson papers. In no way can men studying for promotion in a fire department receive a more complete understanding of fire department operations and administrative problems.

Copies may also be obtained by persons not enrolling in the course at a cost of $7.50.

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The Municipal Fire Problem.
Fire Insurance Classification of Cities.
Organization for Fire Protection.
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Fire Alarm Signaling Systems.
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FYR-FYTER WILL HAVE AN ENLARGED AND IMPROVED LINE

We are hitting the Axis with all we've got. Consequently, there are no Fyr-Fyters available for civilian use except on the highest priority ratings. When the story of Victory is written, our enlarged manufacturing facilities will again be devoted to the production of Fyr-Fyter Extinguishers for civilian fire protection.

We are old hands at converting from war-time to peace-time production. We served the government in World War I and when the Armistice was signed we immediately began to produce for civilian use. We promise that this performance will be repeated.

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SOLID TOP, LEATHER

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HELMETS

employ no critical materials, so are available promptly in two weights and in the two styles shown, with safety "cushion lining" that absorbs shocks.

Drop Brim Style

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CAIRNS & BROTHER
Outfitters to Firemen Since 1836
444 LAFAYETTE STREET - NEW YORK

Walter Kidde Dies

WALTER Kidde, President of two corporations bearing his name, died from a heart attack at his home in Montclair, N. J., on February 9th. He was well known to the fire protection profession as the founder of Walter Kidde & Company, Inc., one of the world's largest manufacturers of carbon dioxide fire extinguishing equipment.

ANNOUNCEMENTS

INDUSTRIAL Fire Brigades, A Training Manual, 184 pages, 8½ by 11 inch size, has been prepared by the N.F.P.A. to meet the demands of members and other persons wanting an authoritative text for use in training industrial fire brigades. The book has a sales value of $1.50 a copy but all N.F.P.A. members including member fire departments will be mailed one free copy as soon as the book is off the press.

The following table of contents will give some indication of the arrangement of the 143 topics or sections making up the 16 chapters of the book:

1. The Industrial Fire Brigade
2. Forcible Entry Practices
3. Rope Work
4. Fire Extinguisher Practices
5. Ladder Practices
6. Hose Practices
7. Salvage and Overhaul Practices
8. Fire Streams
9. Ventilation Practices
10. Periodic Inspections of Plant Fire Protection Equipment
11. Care of Fire Brigade Equipment
12. Fire Causes and Fire Hazards
13. Fire Fighting Procedure
14. Flammable Liquid and Gas Fires and Special Extinguishing Systems
15. Electrical Fires
16. Gas Masks and Rescue Practices.

THE General Detroit Corp., 2200-2272 East Jefferson Ave., Detroit, Mich., announces a new line of approved carbon dioxide type fire extinguishers to be known as "C-D/Fog." These extinguishers will complete a line of first aid fire appliances distributed by General Detroit Corp. The extinguishers are designed for use on flammable liquid fires and fires in live electrical equipment. Illustrated is the 15-pound size. For complete details please write the manufacturer mentioning VOLUNTEER FIREMEN.

A Protection System Can Be No Better Than Its MAINTENANCE and SUPERVISION

The following is quoted from the Standards of the National Board of Fire Underwriters for Central Station Protective Signaling Systems (Pamphlet No. 71, Section 101).

"*The general experience with all protective signaling systems is that their dependability is directly in proportion to the amount and character of maintenance, testing and supervision; also that these functions are best performed when the owner or occupant of the premises contracts for this service with an outside agency known to be qualified in the handling of central station signaling service.*"

The standards for effective protection detailed in this authoritative bulletin are not only met, but in many respects exceeded, by A.D.T. Central Station Service. From the moment of installation, performed by trained installation crews, A.D.T. assumes complete and undivided responsibility for proper maintenance and supervision. The protection equipment on the subscriber's premises is electrically connected with the Central Station. Thus, trouble conditions are detected and reported *automatically*, and corrective action is taken immediately.

In addition to this continuous electrical supervision, A.D.T. maintenance experts make periodic tests and inspections to *anticipate* possible trouble conditions, and any adjustments, repairs or replacements that may be indicated are made immediately. More than any other single factor, it is this high standard of maintenance and supervision that is responsible for the unequalled efficiency of A.D.T. Protection Services.

A.D.T. ELECTRIC PROTECTION SERVICES

Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.** *155 Sixth Avenue, New York*

CENTRAL STATION OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES

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Electric Protection Services

AGAINST FIRE · BURGLARY · HOLDUP

A NATION-WIDE ORGANIZATION

The day the metal works went out of business

There was plenty of time to save the plant . . . even after the flames caught the edge of that puddle of oil.

But someone hit the blaze with a water stream. Ten minutes later you could see the flames all over town.

In your shop you should have men who can handle extinguishers . . . who can pick the *right* one when fire strikes. Training provides the answer. *The best training is a well-run demonstration, where men see extinguishers in action, learn how to use them.*

Walter Kidde & Company is preparing a booklet—"How to Teach Fire-Fighting." It tells how to handle demonstrations effectively, how to set up fire tests, how to explain extinguisher action. Write now. We'll mail you a copy.

Walter Kidde & Company, Inc.
358 West Street **Bloomfield, N. J.**

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PROTECTS LIVES

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